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A four-phase process for translating research into police practice

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ABSTRACT

This article presents a framework that extends the discussion of translational criminology and the dynamic process of translating research to practice. The goal is to provide an explicit dissection of the translation process into four phases to help outline a structured way of thinking about how to incorporate research into police practice. The four-phases include: Phase I: 'Does it Work?' Research and Evaluation; Phase II: 'What Works?' Synthesis and Dissemination; Phase III: 'How to Make it Work?' Implementation and Evaluation; and Phase IV: 'Make it Work!' Institutionalization and Sustainability. The process is founded in implementation science and the 'Knowledge to Action' model (KTA) used in the medical and public health fields, as well as current translation activities for policing, and the authors' experience as practitioners, researchers, and 'translators' over the last 25 years. It is the hope that parsing out four distinct phases for the translation of research to practice will assist researchers and police leaders to identify and fill gaps in current and future translation activities.

Introduction

The purpose of this article is to present a framework that extends the discussion of translational criminology and the dynamic process of translating research to practice. Our goal is to provide a dissection of the translation process into four phases to help outline a structured way of thinking about how to incorporate research into police practice. We focus on proactive crime reduction carried out by police; however, we believe this process will also be relevant to other aspects of policing and criminal justice.

Our ideas are founded in models of translation from medicine, the current translation activities occurring for proactive policing strategies, and our experience as practitioners, researchers, and 'translators' over the last 25 years. In the last 15 years, we have worked together conducting experimental research as well as implementing and evaluating proactive crime reduction strategies in police agencies. Out of this work, we have created stratified policing, which is a structure of processes and procedures that standardizes crime analysis, problem solving, and accountability mechanisms for proactive crime reduction within a police organization. Stratified policing is not a crime reduction strategy itself, but its primary goal is to operationalize and sustain evidence-based crime reduction strategies within everyday operations of a police organization (Santos & Santos, 2015a).

We have done a lot of work in this area, so have thought a lot about how the translation process occurs both from the police practitioner and researcher perspectives. This article breaks down the translation process into four distinct phases and reflects our views of what is necessary to truly translate research into practice. What follows is a brief discussion of the challenge of

translating research to practice and a description of a medical framework used as the basis of the process we outline. The remainder of the article details the four-phased translation process and ends with our conclusions.

The challenge of translating research to practice

As director of the National Institute of Justice (NIJ), Laub (2012) defined translational criminology as taking scientific knowledge and 'translating' it into policy and practice. He argued that translational criminology should be focused both on the creation of knowledge and its dissemination to influence policy and change operational practices. He tasked NIJ with several directives which included communicating research findings without academic jargon, making research accessible for practitioners and policy makers, and facilitating researcher-practitioner partnerships (Laub, 2012). Similarly, Lum and Koper (2017) define translational criminology as the 'theory and study of how the products of criminological and criminal justice research turn into outputs, tools, programs, interventions, and actions in criminal justice practice' (p. 266).

Criminologists and police practitioners have recognized that science has not often translated effectively into policy and practice and more work must be done to that end (Bueermann, 2012; Laub, 2012; Lum & Koper, 2017; Rojek, Martin, & Alpert, 2015; Weisburd, 2011). The medical field recognizes the same challenge. Green and Seifert (2005) assert that even though there has been significant research identifying the factors of adoption, there is a gap in the research on how adoption actually occurs. They find that even when physicians understand the research related to their practice, there are often barriers to implementing the strategies into everyday diagnosis and treatment. These authors discuss how once the research shows something works, physicians are left on their own to determine how and when to change their everyday practices based on the research evidence (i.e., 'just do it'). Interestingly, Green and Seifert (2005) go on to say that 'physicians are expected to accomplish these changes within an already overcrowded, demanding clinic schedule' (p. 542). This statement is eerily similar to what we have heard from police leaders about successfully implementing evidence-based crime reduction strategies.

Importantly, translational criminology involves understanding both how to translate one language (i.e., research results) into another (i.e., policies, procedures, processes, tools, etc.). However, it is also important to recognize the goal of translation is not simply to ensure practitioners understand and consider research findings and evidence-based tools presented to them, but that the results of the research are institutionalized into everyday practice. In an attempt to overcome these challenges, we present a process that is the outgrowth of our own research and partnerships with police agencies as well as of our examination of translation activities in policing and models within the medical field.

Foundation in implementation science

As a foundation for the translation process we propose, we look to the medical field, in particular, the 'knowledge to action' (KTA) approach (Graham et al., 2006). In a recent review of the frameworks, models, and theories associated with research translation, Milat and Li (2017) identified 41 approaches within 98 articles within the medical and public health fields between 1990 and 2014. They conclude there is broad agreement the translation process is dynamic and collaboration between researchers and practitioners is key. They also find the 'knowledge to action' (KTA) model (Graham et al., 2006) to be one of the most frequently applied frameworks.

Under the auspices of 'implementation science,' which is the study of methods that promote the systematic adoption of clinical research findings into day-to-day practice (Manojlovich, Squires, Davies, & Graham, 2015), the KTA framework includes two interrelated but distinct cycles (Graham et al., 2006). The first, called the 'knowledge creation' cycle, is a process which includes knowledge inquiry, synthesis, and tool/product development. Results of knowledge

inquiry funnels into the more specific synthesis of results and subsequently to products and tools provided to the field. Graham and his colleagues (2006) suggest an analogy for the knowledge creation cycle 'would be to think of the research being sifted through filters at each phase so that, in the end, only the most valid and useful knowledge is left' (p. 18).

Within the KTA framework, the knowledge creation cycle is linked to the 'action' cycle (i.e., application) through the identification of specific problems, assessment of barriers to application, and selection of knowledge relevant to the local context. The action cycle is the process in which selected knowledge and tools developed from the 'knowledge creation' cycle are tailored to the local environment, implemented, monitored, evaluated, and sustained (Graham et al., 2006). Importantly, according to Milat and Li (2017), the key implication of the KTA framework is it outlines both knowledge creation, its application and the importance of practitioners in each cycle.

For policing, there have been a large number of experimental and evaluation studies informed by police practice (Weisburd & Majimundar, 2017) that were accomplished by partnerships between researchers and police departments (Alpert, Rojek, & Hansen, 2013). In addition, there have been many meta-analyses conducted and a focus on communicating research findings in digestible and informative ways to police (Laub, 2012). Yet, it seems that most of the translation activities for police research fall within the knowledge creation cycle of KTA. Consequently, we believe there is a void in the development of application knowledge (i.e., action cycle of KTA) and how to implement and sustain evidence-based practices.

The four-phased research-to-practice translation process

Our goal here is to expand the current framework of translation in policing from inquiry, synthesis, and dissemination to include operationalization of evidence-based strategies into practice. To do so, we introduce the 'four-phased research-to-practice translation process' that breaks down the two cycles of the KTA model (Graham et al., 2006) into two phases each:

- Phase I: 'Does it Work?' Research and Evaluation
- Phase II: 'What Works?' Synthesis and Dissemination
- Phase III: 'How to Make it Work?' Implementation and Evaluation
- Phase IV: 'Make it Work!' Institutionalization and Sustainability

Phase I and II fall under the knowledge creation cycle of the KTA framework, and Phase III and IV fall under the action cycle or application of knowledge. All four phases are interconnected, build upon the previous phases, and overlap to some extent.

The rest of the article discusses each phase using police research and practice to provide context and illustrate the concepts. Each section includes the phase's purpose, the methods used to carry out the phase's activities, and its outcomes. Translation models in medicine put high importance on the participation of practitioners (Manojlovich et al., 2015), and in our framework, both researchers and practitioners play a role in each phase. Thus, we discuss the roles of each, the nature of the partnerships and collaboration necessary to accomplish the work, and major barriers to success for each phase.

Phase I: 'does it work?' research and evaluation

Phase I includes producing findings by conducting original and rigorous research studies. In the KTA framework, this phase is thought of as first-generation knowledge in which there are a large number of primary studies on similar topics (Graham et al., 2006). Similarly, in his discussion of evidence-based policing, Sherman (1998) stressed the importance of creating knowledge through both experimental research and evaluations of ongoing operations. He emphasized the research

should be based in theory and examine different strategies and/or solutions that improve current practices. For example, opportunity theory hypothesizes and research has established crime concentrates by place (Weisburd, 2015). Thus, the police research conducted in Phase I tests realistic strategies police can implement to reduce crime at places – hot spots policing (Braga, Papachristos, & Hureau, 2014). Importantly, simply knowing crime concentrates by place does not show how police can actually prevent crime at place. The fundamental principle of Phase I is that innovative strategies are identified or created and then tested for effectiveness using the most rigorous methods.

Methods

The methods used in Phase I include academic research that serves two purposes. The first is to identify, describe, and understand ongoing police practices. These methods typically include national surveys of agencies, departmental surveys of personnel, and/or observational research. These studies identify common practices, challenges, and new trends in policing. For example, much of the research on Compstat and crime analysis has focused on their prevalence and nature of their implementation (Santos, 2014). Two such comprehensive studies include the Police Foundation's research on Compstat implementation (Weisburd, Mastrofski, McNally, Greenspan, & Willis, 2003) and the Police Executive Research Forum's (PERF) research on the implementation of crime analysis into patrol (Taylor & Boba, 2011). In both of these studies, a comprehensive research strategy was used in which a national survey was followed by qualitative assessment of a smaller number of agencies and several in-depth case studies with the goal of describing the state of police practice in these areas.

The second purpose of research in Phase I is to evaluate the impact and test the effectiveness of either current or newly developed strategies through rigorous evaluation methodology and experimental methods. Experiments test the effectiveness of isolated strategies in controlled conditions to achieve high internal validity (Weisburd, 2010). For example, many experiments have been conducted to test various types of police strategies implemented in crime hot spots, such as foot patrol, (Ratcliffe, Taniguchi, Groff, & Wood, 2011), offender-based strategies (Groff et al., 2015; Santos, 2018a; Santos & Santos, 2016), and directed patrol (Santos & Santos, 2015b; Telep, Mitchell, & Weisburd, 2014).

Outcomes

Outcomes of Phase I are particularly salient for the academic side of the translation process. Results from national surveys help determine the state of policing to identify gaps in research and needs for new strategies. The research methods used, strategies tested, limitations identified in each evaluation and experiment help to inform and improve future studies on similar concepts, since this is how science works. Each study's findings contribute to the body of knowledge, so the purpose of Phase I is to identify, evaluate, and test strategies in a variety of circumstances to establish empirical generalizations.

Because Phase I is focused on knowledge creation, police agencies generally do not directly benefit operationally from the research process or the results. Even in those police departments that actively seek research opportunities, the implementation often occurs in silos within an agency merely for the sake of the research (i.e., researchers work exclusively with a few hand-picked personnel). In addition, the strategy tested may not be sustainable beyond the study period, so once the study is over, police operations go back to normal.

Role of researchers and the police

Phase I involves direct collaboration between researchers and the police since the purpose is to understand ongoing practices or proactively test the effectiveness of practical and oftentimes new

strategies. Police researchers require participation from police agencies and individual police practitioners to complete surveys, participate in focus groups and interviews, allow observation of practices, share data, and implement strategies as part of an experiment or evaluation.

Phase I research is not often initiated by police departments, which makes sense since they are not in the business of research but in the business of policing. That is not to say police departments do not solicit research studies and would pay for them with internal funds. Typically, however, when police agencies do seek out a research partner, it is often a requirement of grant funding (Griffith, 2014).

Consequently, researchers take the lead in Phase I, but their collaboration with police agencies and individual practitioners is absolutely necessary. Not only do researchers need a place to study, they also require police to provide them input about what is reasonable for research. It is important the researcher articulates how a particular study is beneficial for research, the agency, and the overall field. There must also be activities that establish trust and understanding between police and researchers, so partnerships can develop and the translation process can begin. Examples include researchers presenting at practitioner conferences, developing informal relationships with agencies, and providing education and research opportunities to police agency employees.

Potential barriers to success

The first potential barrier, and perhaps the most challenging, is the process of researchers finding police leaders who see the importance of research and play an active part by allowing their agencies to participate in research studies. In the last two decades, more departments have opened their doors to researchers; however, researchers still argue they tend to carry a significant load initiating and conducting these studies (Grieco, Vovak, & Lum, 2014).

Another potential barrier is that even when a police leader agrees his/her agency will participate in a study, the agency's culture, capabilities, and participation by personnel may not be conducive to successful implementation. The need to combine rigorous research methodology with practical considerations can often cause conflict between researchers and the police. And while the research process is never perfect, there is potential for mismanagement by researchers who do not fully understand police culture and practice and for undermining by internal police personnel who may not agree with adjusting or changing police business for the sake of research.

Importantly, these barriers are most likely to arise when researchers seek to test strategies that are new to policing or new to the agency because they require a continued commitment of time and resources. They are less likely to arise when researchers seek to survey and interview personnel, observe routine practices of the agency, or test police strategies with minimal interruption, since there is a minimum commitment of time, allocation of resources, or need for systemic change.

Summary

At the beginning of the research-to-practice translation process, even though research tests new and innovative ideas, it is important the strategies examined in Phase I are realistic in practice. Researchers should strongly consider what police resources and capabilities are required and whether a strategy is reasonable for the typical police department to sustain. As is emphasized in the KTA framework, a collaboration between 'knowledge producers-researchers' and 'knowledge implementers-users' is imperative (Graham et al, 2006, p. 18). Finally, the outcomes of Phase I are very important because they provide a wide range of knowledge, yet each study does not stand on its own and the information must be 'sifted.' Thus, Phase II must take place to synthesize findings and communicate those results to practitioners.

Phase II: 'what works' synthesis and dissemination

In the KTA framework, the knowledge creation cycle includes second-generation knowledge produced through systematic reviews and meta-analyses (Graham et al., 2006). Graham and his colleagues (2006) also include the production of third-generation knowledge in the knowledge creation cycle of KTA which is the development of tools that present knowledge in 'clear, concise, and user-friendly formats and ideally provide explicit recommendations with the intent of influencing what stakeholders do … ' (p. 19).

Thus, Phase II includes a synthesis of findings from Phase I to establish 'what works' (Sherman et al., 1997) and the effective communication of the findings and tools to the police. Instead of relying on anecdotal evidence from one study, or on individuals' opinions, favorite programs, or political agendas, the evidence is collectively and critically examined to establish empirical generalizations. Phase II also includes removing research language and effectively disseminating the results to both police and researchers.

Methods

Phase II activities have been a significant focus of police researchers and government funding in the last two decades. The extensive report by Sherman and his colleagues (1997) was the first of many iterations of synthesis of police research on 'what works.' The most recent iteration was published in late 2017 by the National Academy of Sciences (Weisburd & Majimundar, 2017).

To start the synthesis process, police researchers have used the Campbell systematic review methodology (Campbell Collaboration, 2018) to evaluate research conducted about strategies in a particular topic area. The Campbell Collaboration's meta-analysis methodology sets criteria for selecting the highest quality studies and evaluating their results to make conclusions about effectiveness. The Campbell systematic reviews cover a range of disciplines and in the area of crime and justice, there have been a number of systematic reviews of proactive policing strategies, including hot spots policing, focused deterrence, community policing, disorder policing, and problem-oriented policing (Campbell Collaboration, 2018).

With a broader purpose, researchers then collaborate with police leaders and experts to review the meta-analyses results and make recommendations for practice. The National Academy of Sciences report entitled, *Proactive Policing: Effects on Crime and Communities* (Weisburd & Majimundar, 2017), is the most recent result of this activity. The following describes its method (p. iv):

> Consensus Study Reports published by the National Academies of Sciences, Engineering, and Medicine document the evidence-based consensus on the study's statement of task by an authoring committee of experts. Reports typically include findings, conclusions, and recommendations based on information gathered by the committee and the committee's deliberations. Each report has been subjected to a rigorous and independent peer-review process and it represents the position of the National Academies on the statement of task.

The importance of this process lies in its foundation in theory, assessment of the research, and on establishing consensus among researchers and police experts.

Police practitioners also come together to identify and recommend 'best practices.' While informed by research, the recommendations made by practitioner groups about strategies are often based on experience and practice of police experts and their agencies. For example, organizations like PERF, the International Association of Chiefs of Police, the Major City Chiefs, and the Police Foundation often bring police leaders and experts together for focus groups and discussions to develop consensus and make recommendations to improve and/or implement particular strategies.

Outcomes

An important component of Phase II is the dissemination of the synthesis results. The findings from Phase I and of the meta-analyses from Phase II are primarily published in academic journals for which policy makers and practitioners typically do not have regular access. As Laub (2012) emphasized, to impact the field, research findings must be communicated effectively in non-research jargon as well as made accessible to practitioners and policy makers. There is a wide variety of dissemination media and central electronic repositories for this information that have been established over the last two decades. The following are three examples for evidence-based policing strategies:

- Campbell Plain Language Summaries: These are short one-to-two page briefs in a flyer format that are based on the larger report and are 'published as part of our [Campbell Collaboration's] commitment to helping people use and interpret research evidence' (Campbell Collaboration, 2018).
- Crimesolutions.gov: This is a website maintained by the Office of Justice Programs in the U.S. Department of Justice that includes easily understandable ratings about whether a strategy achieves its goals and profiles of programs and practices.
- Evidence-Based Policing Matrix Software: This is software that guides practitioners through the research evidence on proactive policing strategies so they can 'more easily access and understand the field of knowledge than by reading individual research articles or even systematic reviews.' (Lum & Koper, 2017, p. 46).

Many federal agencies, academic, non-profit, and practitioner organizations have created publications and maintain websites that pare down the research results and remove jargon, including:

- *Research in Brief*, National Institute of Justice
- Problem and response guides, Center for Problem-Oriented Policing, Arizona State University
- *Ideas in American Policing* series, Police Foundation
- *The Police Chief* magazine, International Association of Chiefs of Police
- *Crime Analysts Research Digest*, International Association of Crime Analysts

Academics, police experts, and government officials also disseminate information about how to access these and other resources through a wealth of direct communication opportunities. Police membership organizations have direct contacts with their members through listervs and mailing lists. Presentations are made at membership conferences, in congressional briefings, and at state, city, and local government non-police conferences.

The role of researchers and police

Researchers have an obvious and significant role in Phase II. They conduct the 'research on the research' that rigorously establishes what works. They collaborate with practitioners to make recommendations for the field. In addition, practitioners often lead their own efforts to establish best practices and serve an important role in helping to pare down the research and communicate it to other practitioners.

However, unlike Phase I, research in Phase II does not involve working directly with police departments to test interventions or engaging agencies and practitioners for national surveys. In Phase II, researchers and practitioners collaborate to synthesize knowledge, so there is more cross-pollination than a direct partnership.

Potential barriers to success

To ensure synthesis and dissemination are successful the information must be relevant to its customers (i.e., police and policy makers). It is important that findings from meta-analyses conducted by researchers are illustrated in the context of everyday police practice. Also, simply publishing in practitioner journals and posting on websites does not ensure the material is being read since people first have to know it is there. Thus, efforts must be made both to make the material accessible as well as engaging.

Summary

Together, Phases I and II represent the knowledge creation cycle of the KTA framework. They establish whether strategies work and communicate what works to researchers and the police. It is at this point where police are often told to take the information and 'just do it' as Green and Seifert (2005) assert happens in medicine. We argue even with effective communication, the 'what works' message is still fairly conceptual. For instance, based on theory and research, Lum and Koper (2017) layout describe a number of 'plays' (i.e., strategies) for different crime reduction situations. One example, 'The Burglary Prevention Play' includes the following (p. 186):

CONDITION: An increase in residential burglaries in an area; the occurrence of a burglary in a block or high rise.

(1) Research indicates that once a home or apartment unit is burglarized, homes and units next door and/or very nearby have a heightened risk of burglary, particularly over the next 2 weeks.
(2) After a burglary, warn neighbors immediately of their heightened risk and suggest methods to target harden their homes …
(3) Work with place managers and residents of buildings to determine the underlying mechanism that may be contributing to burglaries …
(4) Work with place managers and residents for longer-term solutions …
(5) Have the agency CPTED unit conduct an environmental analysis of the area to determine what opportunities are contributing to crime …
(6) Research indicates burglaries often commit crimes within one mile of their own residence or activity space. Knowing, monitoring, and making contact with burglary probationers and parolees nearby may help prevent future crime.

This is an excellent example of translation that occurs in Phase II, as the recommended strategies are clearly informed by evidence created from Phase I that burglaries occur near one another in a short time and offenders commit crimes near where they live or frequent. However, the play does not provide guidance for operationalizing the strategies into the everyday police practice so it is systematic and sustained. Questions immediately come to mind for implementation:

- What constitutes an 'increase'?
- Who identifies the 'increase'?
- What is distributed to police for a response?
- How is implementation facilitated across different times of day, based on operational schedules, and/or among different units and divisions?
- Who makes sure this all happens and determines whether its working?

This is not a critique of the Burglary Play, but we use it to illustrate how more translation is necessary before evidence-based strategies and tools developed in Phase II are implemented into everyday practice. Consequently, Phases III and IV that represent the "action cycle" within the KTA framework address this need.

Phase III: 'how to make it work' implementation and evaluation

Police researchers can play a vital role in providing assistance to practitioners about 'how to make it work.' That is, recommending specific processes and practices for implementation without testing them is not enough to ensure successful translation. Graham et al. (2006) note the KTA action cycle is not only determining what knowledge is best applied in different environments and situations, but is also evaluating whether the implementation of knowledge makes a difference in practical processes and outcomes. Thus, Phase III includes the study of organizational implementation of evidence-based strategies as well as the synthesis and dissemination of those results to directly assist adoption. Now that we know which strategies are effective from Phases I and II, Phase III is the creation and testing of models, mechanisms, and structures to implement those strategies.

Methods

Police experts recognize research results about crime reduction are not common knowledge among police practitioners, and they are not used as a regular part of police practice (Lum & Koper, 2017; Weisburd, 2011). Thus, to achieve translation for 'how to make it work,' researchers and the police must work together to implement evidence-based strategies, conduct research to test their effectiveness in routine practice, and understand how they are successfully implemented in the 'real world' and sustained.

We look to medicine again for guidance and what they call 'practice-based research' which is the research of routine practice (Boba, 2010). Psychiatrists have recognized the need for research to be conducted in the therapeutic environment in addition to being gathered in an experimental setting where the real-world circumstances of therapy are not taken into account (Hellerstein, 2008; Marginson et al., 2000; McDonald & Viehbeck, 2007). More specifically, Marginson et al. (2000) argue that to complement random controlled trials, research based on good quality data collected from routine psychiatry practice may provide direction for the implementation of treatments as well. For policing, there are several methods that can accomplish a practice-based research approach.

First, police departments that have identified an effective strategy to implement can enlist researchers to conduct an evaluation of the process and impact of the strategy. This is important research because police agencies that are successfully implementing effective strategies do not always have the time, capabilities, or inclination to conduct sound evaluations and share the findings with the field.

Second, researchers can become involved with police departments that are seeking to implement innovative strategies. In this situation, the researcher actively assists in developing processes and mechanisms for implementation, provides technical assistance, and then conducts the evaluation. Since 2009, the Bureau of Justice Assistance has funded projects as part of their Strategies for Policing Innovation (SPI) program with the goal to provide:

> … financial and technical assistance to police departments to help them identify effective tactics for addressing specific crime problems in data-driven ways. Some key components of SPI include using various data sources when developing their strategies, seeking community input on crime issues and solutions, promoting organizational change in using data-driven strategies, and working with a research partner to implement and evaluate the outcomes of their strategies" (CNA, 2018).

Over the past 15 years, we have worked with a range of police departments without grant funding to provide assistance in implementing proactive crime reduction strategies, crime analysis, and accountability mechanisms. In each case, we have evaluated and critically analyzed the process of implementation (e.g., Boba, 2011; Santos, 2018b). Another method to accomplish practice-based research is through demonstration and field application projects where researchers and police work together to implement and study the operational processes necessary to implement evidence-based strategies. Some examples include the "Field Applications of POP Guides" in Savannah, GA, Chula Visa, CA, and Raleigh, NC as well as "Applying POP in Charlotte, N.C." (POP Center, 2018).

Finally, NIJ created a program in 2014 called LEADS Scholars program (Law Enforcement for Advancing Data and Science) which 'develops the research capacity of mid-career law enforcement personnel who are committed to advancing and integrating science into law enforcement policies and practice' (NIJ, 2018a). Merit-based scholarships are awarded to mid-rank officers and executives who have effectively infused research into policy development within their departments. The goal of the program is to encourage and develop future police leaders to value and conduct research in their agencies. NIJ has also created the LEADS Agency program which is 'designed to help law enforcement agencies become more effective by improving their internal capacity for collecting data, analyzing data, conducting research, and using evidence' (NIJ, 2018b). While not offering support through grants, NIJ provides technical assistance to selected police departments to support internal research activities and help publish results.

Outcomes

Similar to Phase I, the findings of research studies conducted in Phase III should be published in academic journal articles to ensure rigor. However, the nature of the research and findings might be best published in specific journals that target a collective academic and practitioner audience. Examples include *Police Practice and Research: An International Journal; Policing: A Journal of Policy and Practice*; and *Policing: An International Journal of Police Strategies & Management*.

As in Phase II, the results from individual studies need to be synthesized and disseminated. The results of Phase III would be published in similar practitioner-focused outlets as in Phase II, such as monographs, short research briefs, summaries, and articles in practitioner magazines. In our own work, we have published academic journal articles related to implementation of proactive crime reduction strategies through stratified policing covering topics, such as process evaluation (Boba, 2011), impact on organizational culture (Santos, 2018b), the role of leadership (Santos & Santos, 2012), and the impact on crime (Santos & Santos, 2015c). We have also published articles about stratified policing in practitioner magazines, such as *Translational Criminology* (Santos & Santos, 2015a) and the *FBI Law Enforcement Bulletin* (Santos, 2011).

Yet, because the focus here is on guidance for implementation, it is important the findings are also translated into specific practical products that can be taken and used directly by police departments. For example, for stratified policing, we have produced a guidebook with funding from the COPS Office that provides examples for developing crime reduction goals; creating required policies and action-oriented crime analysis products; assigning crime reduction responsibilities by rank; and establishing an accountability meeting structure (Boba & Santos, 2011).

Because the intention of Phase III is to provide instruction on how to make it work, it is important to have specific hands on tools and products that can be taken and easily adapted for daily use. Accordingly, we have created and disseminate a 'Stratified Policing Toolkit' that contains over 25 different text documents, spreadsheets, and presentation files police departments can download and use along with the guidebook to support implementation. The toolkit includes sample crime reduction policies, accountability meeting agendas, and presentation templates, crime analysis product templates, as well as sample organizational structures that have been implemented effectively in a host of police departments. Each file contains a short explanation for how to tailor it to the agency's purpose and use it for proactive crime reduction.

Face-to-face training is also a big part of delivering the results of Phase III. In Phase II, the results are presented at meetings, police conferences, and other seminars. However, because Phase III provides practical guidance for implementation, the results would be more appropriately delivered as training either for personnel from different agencies and/or for all personnel in one agency implementing new strategies. For example, our stratified policing training program includes an overview of foundation and framework of the model as well as separate sessions for different ranks and divisions based on their specific roles in the crime reduction process.

Finally, evaluation results of the implementation are important outcomes on two fronts as practice-based research. Assessing the strengths and weaknesses of an agency before implementation can help tailor strategies to resources, culture, and nature of the department and serves as a baseline for comparison. The results of an evaluation both inform the wider community about 'how to make it work' as well as help a particular department adjust and improve its implementation and sustainability.

The role of researchers and police

Because evidence-based crime reduction practices are new to police generally and researchers do not always know the 'ins and outs' of the police organization, Phase III requires close collaboration between individual departments and researchers who have particular knowledge about the nature of police organizations and cultures. Not every researcher is well suited to both assist implementation and conduct the evaluation. Similarly, not every police leader and/or department is well suited to this type of collaboration. Even those agencies that work well with researchers to conduct research for Phase I may not be ideal partners here because Phase III requires them to make meaningful, permanent changes to the organizational structures and processes. The ideal partnership is between a police department that is truly looking to change and a researcher with both knowledge and experience in practice-based research and police operations.

The roles of the researcher and the police in Phase III are the most balanced of all the phases. Yet, it is important to recognize even established partnerships will ebb and flow based on the circumstances. We suggest it is the researcher's responsibility to stay connected because the police department may continue implementation whether or not a researcher is involved. Since one desired outcome of Phase III is to produce findings for the field, the researcher must continually facilitate the connection and lead the publication of the results to the field.

Potential barriers to success

Having done much practice-based research ourselves, we have seen and experienced a number of challenges both to the implementation of evidence-based strategies and to carrying out the research. One example is the lack of or inconsistent leadership that can leave the implementation of innovative practices and/or facilitation of the research in the hands of uninformed, uncommitted, and/or unmotivated personnel. Other circumstances can overwhelm the agency's resources and morale making it more difficult to maintain the implementation of strategies not yet institutionalized. These can include budget crises, a critical incident gone bad, officer contract disputes, organizational push back, and mass retirement. Lastly, when practice-based research is funded by grants, a delay in the implementation can result in running out of time and/or funding making more difficult for the researcher to maintain involvement.

Summary

Like Phases I and II, Phase III requires individual research studies, synthesis, dissemination, and partnerships between police and researchers. But this is not the final step of the translation process because even knowing what strategies are effective and how to implement them, the actual implementation in one department or throughout policing does not typically occur on its own. The results of Phases I, II, and III together are still not enough to complete the translation process.

Phase IV: 'make it work!' institutionalization and sustainability

Phase IV is concerned with the institutionalization and maintenance of evidence-based strategies by practitioners – 'Make it work!' It is consistent with the final part of the KTA action cycle which

is centrally focused on sustaining knowledge use (Graham et al., 2006). Conducting research is not the focus of Phase IV since the previous phases determined what strategies are effective and how to implement them. Phase IV is the culmination of the translation process but it is often overlooked, its importance and difficulty underestimated, or all together taken for granted. We maintain that the translation of research to practice does not occur until Phase IV is achieved.

To clarify the importance of Phase IV, we compare processes and procedures for crime reduction efforts to those for answering police calls for service. An entire system of technology, policies, procedures, training, and resources is clearly established in policing to answer calls for service. These processes and procedures are sustained through the police hierarchal structure, through formal accountability, and informally through the organizational culture. The system is more similar than different across police departments, and there are profession-wide standards and consistent expectations by police, governments, and the community about how police should answer citizen-generated calls for service. Thus, this function of police has been fully institutionalized and is sustained in practice.

On the other hand, proactive crime reduction efforts do not have such established mechanisms. While some police departments may have specific analysis and response processes, it is not the norm, but rather an exception, that an agency has institutionalized proactive crime reduction efforts with the same emphasis, standards, and expectations as calls for service. In the case of proactive crime reduction by police, the National Academy of Sciences report (Weisburd & Majimundar, 2017) asserts to be effective police leaders cannot simply prescribe to one approach. The committee recommends not only should police combine place-based, problem-based, and offender-based approaches, but they should also incorporate a community-based approach to enhance legitimacy, trust, and cooperation with the community. Doing all this is not a simple task, and requires a concerted effort to infuse these practices into the field as well as into individual agencies.

Methods

We advocate if the police are to fully operationalize proactive crime reduction, implementation and sustainability should focus both on individual police agencies and the entire profession itself. In our opinion, the essential requirement to 'make it work' and change the way an organization or a professional field operates is effective leadership. Leaders within individual agencies and leaders of the police professional community both have roles to play in Phase IV.

Individual police department leaders should seek to implement strategies in their own agencies based on evidence. However, this is often not as easy as it seems and some police department executives say they are innovative but have not done what is necessary to institutionalize proactive crime reduction strategies. We found in a national study of police departments that even when patrol commanders prioritized evidence-based strategies, such as hot spots policing, problem-oriented policing and crime analysis, they did not report changing their standard policing practices (Smith, Santos, & Santos, 2018). Our findings are similar to those of Weisburd and his colleagues (2003) who reported Compstat adoption enabled police agencies to promote their progressive and innovative nature, when in reality Compstat adopters were largely functioning in an identical manner to non-adopters. In other words, agency executives claiming to be innovative were, in fact, not leading substantive change in their departments.

Then, what is the difference between departments that have made sustainable organizational change and those that only say they have? We strongly believe robust and consistent leadership is the difference. According to Carnall (2009) and Crank (2004), leadership, accountability, communication, and transparency are all important and necessary factors for true organizational change. Remember, at this point, leaders know which programs work, how to make them work, and have been provided the tools to support implementation.

Importantly, leaders can not only introduce a set of policies and procedures to their agencies, but must also 'articulate a vision, set standards for performance, and create focus and direction' (Bolman & Deal, 2008, p. 345). We have found creating committees, providing funding, allowing feedback, conducting training, and increasing analysis capabilities was not enough for an agency to accomplish organizational change (Santos & Santos, 2012). We have found it is the strong, consistent CEO who has a clear message and holds people accountable who tips the scale.

Even further, we have seen police departments where the status quo prevailed even when morale was good, personnel were open to the new ideas, leaders wanted change, and adequate training was provided. We believe the reason for this is the leaders often do not reinforce the organizational systems for the new strategies as systematically and vehemently as they do for handling calls for service. The police departments we have seen that are most successful are those in which the CEO takes ownership of the implementation, becomes directly and consistently involved, and creates processes and mechanisms that are unavoidable. The result is a system in which there are clear expectations, for everyone from the line-level officer to the chief, to carry out crime reduction strategies.

Leadership at the professional level is also crucial to 'make it work.' At the national level, Federal and state governments can strongly advocate and encourage change through words and action (i.e., funding) for practitioners to adopt evidence-based practices. Efforts here should emphasize the need and provide guidance for organizational change. For example, police leadership organizations, such as the International Association of Chiefs of Police, and the National Sheriff's Association, as well as police commander training schools, such as the FBI National Academy and the Southern Policing Institute, should emphasize research findings in their classes, promote evidence-based practices, and support police executives, not simply to consider these practices, but strongly encourage implementation. There are examples of this type of support from these entities, but we maintain even more needs to be done.

Outcomes

The outcomes, as noted earlier, are the result of the entire translation process. They are not easily accomplished, but are straightforward to state. The outcome for individual police agencies is the institutionalization of new evidence-based strategies within the organizational structure with the same intensity, focus, and accountability as responding to calls for service and investigating crimes.

For the professional community, the outcome is establishing expectations that research 'should' and does inform practice at every level. This is a paradigm shift to being fully committed to incorporating evidence-based strategies into practice. In the context of proactive policing, an outcome is incorporating evidence-based strategies into the standard model of policing. Expectations of the community, local governments, and the police should be that specific evidence-based crime reduction strategies are not 'optional' but are part of every police department's mission and day-to-day operations just like the response to calls for service and investigating crimes are.

Importantly, at this point in the KTA action cycle there is a feedback loop in which the attempts to sustain knowledge inform the first part of the action cycle and strategies are adapted and subsequently re-evaluated and implemented. Similarly, in this four-phase translation process, the successful and failed outcomes of Phase IV inform the future implementation and evaluation that continually takes place in Phase III.

The role of researchers and police

The role of researchers is limited in Phase IV, as it is up to practitioners to implement and sustain evidence-based practices at the local, regional, and national levels. That is not to say researchers and police experts do not have a role at all. On the contrary, their role is to support the professional community and individual police departments in implementation, evaluation, and adjustments, just like they do when they assist in improving other areas of police practice.

To support a paradigm shift, we, and others, maintain it will be beneficial for police departments to create an internal full-time, permanent capacity for supporting the translation process. This involves creating and maintaining a research and analytical capacity that can assist in the implementation and evaluation of evidence-based strategies. This capacity is fulfilled by a specific designated position(s) within the agency. While it may not be realistic for police departments with limited resources to create a new position, some small and most medium to large sized-agencies are well suited to create one or more of the following:

- Crime analyst: An employee of the agency who conducts crime analysis to support crime reduction efforts, investigations, patrol activities, and evaluation and has specific education and training related to research and analysis with a balance of knowledge about police culture, the organization, and technology (Santos, 2017). The crime analyst profession is fairly well established and most medium to large police agencies have individuals who do this work (Bureau of Justice Statistics, 2018).
- Pracademic: A sworn officer (at any level) who has a graduate degree and training in research. Ideally, individuals in these positions identify evidence-based practices, assist in their implementation, and conduct evaluations. They may also serve to clarify jargon and research methods, so relevant research is effectively communicated to police management for decision making (Willis, 2016).
- Embedded criminologist: A person with a doctorate degree and/or a researcher who is not working *with* the police department but is working *within* the police department. The individual is an independent, unbiased full-time employee with expertise in criminology, criminal justice practices, analysis, statistics, research methodology, and evaluation (Braga, 2013). Embedded criminologists carry out independent research that supports an organization's mission and collaborate to develop programs by introducing and implementing evidence-based practices (Braga & Davis, 2014).

Potential barriers to success

As in Phase III, potential barriers to success in Phase IV are related to the leadership and commitment that is necessary to change an organization for any purpose. For example, the historical nature of police executive longevity is a major factor. Researchers have found the average tenure of a police chief is only around 3 years (Rainguet & Dodge, 2001), and experts say real organizational change often takes several years (Todnem & MacLeod, 2009). Thus, even a chief who begins the implementation process immediately upon starting the job, might not be in the position long enough to follow through. We have seen initiatives fizzle out and abruptly stop when there is a change in top leadership and push back from middle managers. However, we have also seen organizational change sustained across leaders. In our work with the Port St. Lucie, FL Police Department, stratified policing has been carried out and made better by five consecutive police chiefs over 15 years.

Another potential barrier, also intrinsic to policing, is there is not often pressure on police leaders to innovate and/or incorporate research into their operations. Local government, political leaders, citizens of individual communities, and the public, in general, are satisfied when police answer calls for service quickly and conduct thorough investigations. In our experience, implementation of proactive policing strategies is most often sparked by police leaders and rarely is it insisted upon by an outside entity of any type. Thus, a difficult challenge is educating the government and the general public to understand the value of research so they expect the implementation of evidence-based strategies.

Summary

Of course, there are many practical factors that are required to accomplish this final phase of the translation process, such as funding, additional personnel, and resources. In many circumstances, however, strong leaders who place a priority on implementation of evidence-based strategies can overcome these practical barriers by prioritizing funding, reallocating resources to change the organization and the profession. We only briefly touch on the mechanisms that would make organizational change successful as there is a wide range of literature and research in many disciplines on this topic. However, the main point here is that Phase IV is important, yet very difficult, and should not be underemphasized or ignored in any discussion of the translation process.

Conclusions

Our purpose has been to provide a framework that extends the current discussion of translational criminology and, more specifically, the dynamic process of translating research to practice related to proactive policing. We provide a framework for the translation process based on the two cycles of the KTA process – knowledge creation and the action cycle (Graham et al., 2006). The four phases presented here overlap to some extent with one another and expand what has been discussed in previous translational criminology literature:

- *'Does it work?'* Phase I is led by researchers with the purpose of conducting high-quality rigorous research and evaluate innovative, realistic strategies. The outcomes are findings from individual studies and researcher/police partnerships are imperative to carry out the research.
- *'What works?'* Phase II is also led by researchers with the purpose of conducting meta-analyses of the individual study findings from Phase I. Researchers and practitioners collaborate to establish recommendations for the field and communicate the results to practitioners. The outcomes are evidence-based strategies (i.e., empirical generalizations).
- *'How to make it work?'* Phase III is the collaboration between researchers and organizations for both implementation of evidence-based strategies into organizations as well as the evaluation of that implementation. Practitioners and researchers must partner since this research requires implementation into the day-to-day operations of an organization as well as systematic evaluation. The outcomes include organizational models, policies, processes, mechanisms, and products that support implementation and are found to work in practice.
- *'Make it work!'* Phase IV is the institutionalization of evidence-based practices into individual organizations and within a profession. The outcomes are real organizational change in individual agencies as well as a paradigm shift in the field. Leaders are key to demanding and facilitating change at the local, regional, national, and international levels. While established practitioner/researcher partnerships are not required, researchers assist in this process and organizations build internal capacities for analysis and research.

Importantly, all four phases of the research-to-practice translation process are equally important. Graham and his colleagues (2006) recognize the transfer of knowledge to action is 'complex and challenging' as well as an iterative process (p. 22). We assert if the goal of translational criminology is for practitioners to consistently use evidence-based strategies, translation is not accomplished until the strategies are operationalized across the field and in organizations' day-to-day operations as presented in Phase IV.

Consequently, the easiest way to determine whether something is fully translated is by comparing it to strategies and practices that are already institutionalized. We use the process

for answering calls for service as our standard to assess proactive crime reduction efforts by police. Our conclusion is the translation of evidence-based crime reduction is not yet complete because police have not adopted consistent policies, systematic processes, and operational mechanisms as they have for carrying out a call for service.

While current translation of crime reduction research to police practice seems to have focused on Phases I and II, we hope that by parsing out Phases III and IV, more attention will be paid to the operationalization of the effective strategies, so police agencies and the field can be better equipped to 'make it work.' Finally, it is our hope the four-phased translation process will assist researchers and police leaders to identify and fill gaps in current and future translation activities.

Disclosure statement

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Notes on contributors

Roberto G. Santos, after 4 years in the U.S. Marines, began his policing career in 1994 moving up the ranks and retiring as a police commander after 22 years. He worked as an officer, supervisor, and commander in every division. While at the police department, he led the implementation of two random controlled trials, supervised the crime analysis unit for 10 years, and oversaw the accountability process for the agency. In 2013, he earned a Ph. D. in criminal justice and is now a tenure track assistant professor of criminal justice at a 4-year university.

Rachel B. Santos worked 5 years as a full-time crime analyst before taking a position as a Senior Research Associate and Director of the Crime Mapping Laboratory at the National Police Foundation in Washington DC. There, she conducted grant funded research, training, and worked with police practitioners, government officials, and researchers from around the world. Since 2003, she has been a university professor conducting experimental research and evaluations as well as police training and technical assistance in these areas.

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